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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,897	12/02/2003	Yuan-Chi Chang	YOR920030555US1	2439

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EXAMINER	
SOMMERFELD, PAUL J	

ART UNIT	PAPER NUMBER
2168	

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/724,897	CHANG ET AL.	
	Examiner	Art Unit	
	Paul J. Sommerfeld	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Bergman et al (Bergman, Lawrence; Castelli, Vittorio; Li, Chung-Sheng; Tilke, Peter; Bryant, Ian; PetroSPIRE: A multi-modal content-based retrieval system for petroleum applications, September 1999, SPIE Vol. 3846, pp. 449-460).

As to claim 1, Bergman et al teaches a method for storing a semantic object (see Abstract), the method comprising:

summarizing attributes of a semantic object (p. 457 lines 45-47, extracting a vector of feature values);

indexing the summary of attributes (p. 457 lines 50-51, indexing coordinates and feature values); and

storing the summary of attributes and the index of the summary of attributes (p. 457 line 45-46, storing extracted features of the semantic object; p. 457 line 50, storing the index of feature values as an R-Tree).

As to claims 2, 15, and 27, Bergman et al teaches the semantic object comprises a summary representation of raw data measurements (p. 454 lines 11-12, indicating that features are extracted from raw data).

As to claims 3, 16, and 28, Bergman et al teaches searching a database of a plurality of indexed attributes of semantic objects (p. 459 lines 33 and 41, querying a database which includes an index of texture features).

As to claims 4, 17, and 29, Bergman et al teaches searching the index of the plurality of semantic object attributes to identify a semantic object having attributes that match a query and retrieving the identified semantic object (p. 452, lines 18-20, using a semantic definition to search the archive, and subsequently returning the results.).

As to claims 5, 18, and 30, Bergman et al teaches an optimizing mechanism is used in searching to optimize the process of searching (Bergman et al p. 459 lines 7-10, indicating a dimensionality reduction algorithm that locally reduces the dimensionality of the search space. Lines 5-6 indicate that the search process can be extremely time-consuming if a linear scan is performed, hence, the dimensionality reduction algorithm is presented as a time-saving optimization to the search process.).

As to claims 6, 19, and 31, Bergman et al teaches the semantic object represents a model of a phenomena of interest that is measured by a collection of data which exceeds a data size that is accessible with a predetermined efficiency by multiple simultaneous users (Bergman et al p. 449 lines 27 and 35, indicating that the semantic objects represent phenomena related to petroleum well-bore data, and that the volume of this data is extremely large.).

As to claims 7, 20, and 32, Bergman et al teaches the semantic object comprises geological survey data (p. 450 line 39, where geological survey data is read on data collected from oil well bores) with summary statistics including one of slice labels, signal strength, and coordinates of the surveyed segments (p. 457 line 50, coordinates of the extraction window).

As to claims 8, 21, and 33, Bergman et al teaches the index of the summary of attributes comprises a plurality of key features that have been resolved into a set of data points and summary statistics (p. 457 lines 50-51, where summary statistics is read on feature values, because both consist of values summarized from a semantic object).

As to claims 9, 22, and 34, Bergman et al teaches the summary of attributes comprises one of a confidence level, summary statistics and a compact approximation (p. 457 lines 46-47, where summary statistics is read on vector of feature values, because both consist of values summarized from a semantic object).

As to claims 10, 23, and 35, Bergman et al teaches the confidence level represents a degree of accuracy of classification for the semantic object (p. 458 lines 12-14, indicating a similarity of zero or one between objects, zero indicating that the objects do not belong to the same class, one indicating that the objects do belong to the same class).

As to claim 13, Bergman et al teaches a method of deploying computer infrastructure, comprising integrating computer-readable code into a computing system, wherein the code in combination with the computing system is capable of performing the method of claim 1 (p. 453 lines 10-15).

As to claim 14, Bergman et al teaches a signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processor (p. 453 line 10), the program comprising:

instructions for summarizing attributes of a semantic object (p. 457 lines 45-47, extracting a vector of feature values);

instructions for indexing the summary of attributes (p. 457 lines 50-51, indexing coordinates and feature values); and

instructions for storing the summary of attributes and the index of the summary of attributes (p. 457 line 45-46, storing extracted features of the semantic object; p. 457 line 50, storing the index of feature values as an R-Tree).

As to claim 26, Bergman et al teaches a system for storing a semantic object (p. 453 line 10), the system comprising:

a semantic object summarizer that summarizes attributes of a semantic object (p. 457 lines 45-47, extracting a vector of feature values);

an indexer that indexes the summarized attributes (p. 457 lines 50-51, indexing coordinates and feature values); and

a database that stores the summary of attributes and the index of the summary of attributes (p. 457 line 45-46, storing extracted features of the semantic object; p. 457 line 50, storing the index of feature values as an R-Tree).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergman et al (Bergman, Lawrence; Castelli, Vittorio; Li, Chung-Sheng; Tilke, Peter; Bryant, Ian; PetroSPIRE: A multi-modal content-based retrieval system for petroleum applications, September 1999, SPIE Vol. 3846, pp. 449-460), and further in view of Li et al (Li, Chung-Sheng; Yu, Philip S.; Castelli, Vittorio; MALM: A Framework

for Mining Sequence Database at Multiple Abstraction Levels, 1998, Conference on Information and Knowledge Management, Proceedings of the seventh international conference on information and knowledge management, pp. 267-272).

As to claim 10, Bergman et al does not explicitly teach the compact approximation comprises a multiple segment polyline (p. 268 col. 1 lines 1-8, segmenting data, then finding a linear approximation to each segment. These line segments comprise a polyline, since a polyline is simply a line comprised of one or more line segments (see Wikipedia definition of polyline included in this Office Action)).

Li et al teaches the compact approximation comprises a multiple segment polyline (p. 268 col. 1 lines 1-8, segmenting data, then finding a linear approximation to each segment. These line segments comprise a polyline, since a polyline is simply a line comprised of one or more line segments (see Wikipedia definition of polyline included in this Office Action)).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have modified the method of summarizing a semantic object taught by Bergman et al by the method of approximating data by a polyline taught by Li et al, because approximating a semantic object by a polyline enables similarity searches, particularly to identify data with similar geological features (Li et al p. 267, col. 1 lines 6-11 and col. 2 lines 4-6).

As to claim 11, Bergman et al, as modified, teaches each segment of the multiple segment polyline comprises a best fit line having end point coordinates and a slope (Li et al p. 270 col. 1 lines 22-25, showing the segments have endpoints; p. 270 col. 1 lines 41-43, showing the segments have a slope).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- "GeoBrowse: An Intetgrated Environment for Satellite Image Retrieval and Mining", authored by Giovanni B. Marchisio, Wen-Hao Li, Michael Sannella, and Jill R. Goldschneider, for teaching extracting features from geographical data and storing them in a database.
- U.S. Patent Number 6,128,577 A, issued to Assa et al, for teaching a system for modeling geological structures and properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul J. Sommerfeld whose telephone number is 571 272-6545. The examiner can normally be reached on M-F 7:45 am - 4:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim T. Vo can be reached on 571 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TIM VO
PRIMARY EXAMINER